BARITE

(Data in thousand metric tons unless otherwise noted)

<u>Domestic Production and Use</u>: Domestic producers of crude barite sold or used for grinding about 660,000 tons in 2013 valued at an estimated \$78 million. Most of the production came from four major mines in Nevada; a significantly smaller sales volume came from a single mine in Georgia. In 2013, an estimated 2.6 million tons of barite (from domestic production and imports) was sold by crushers and grinders operating in nine States. Nearly 95% of the barite sold in the United States was used as a weighting agent in fluids used in the drilling of oil and natural gas wells. The majority of Nevada crude barite was ground in Nevada and Wyoming and then sold primarily to exploration companies drilling in Colorado, New Mexico, North Dakota, Utah, and Wyoming. Crude barite was shipped to a Canadian grinding mill in Lethbridge, Alberta, which supplied the western Canada drilling mud market. The barite imports to Louisiana and Texas ports mostly went to offshore drilling operations in the Gulf of Mexico and to onshore operations in Louisiana, Oklahoma, and Texas.

Barite also is used as a filler, extender, or weighting agent in products such as paints, plastics, and rubber. Some specific applications include its use in automobile brake and clutch pads and automobile paint primer for metal protection and gloss and to add weight to rubber mudflaps on trucks and to the cement jacket around underwater petroleum pipelines. In the metal-casting industry, barite is part of the mold-release compounds. Because barite significantly blocks x-ray and gamma-ray emissions, it is used as aggregate in high-density concrete for radiation shielding around x-ray units in hospitals, nuclear powerplants, and university nuclear research facilities. Ultrapure barite consumed as liquid is used as a contrast medium in medical x-ray examinations.

Salient Statistics—United States:	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013^e</u>
Sold or used, mine	396	662	710	666	660
Imports for consumption	1,430	2,110	2,320	2,920	2,130
Exports	49	109	98	151	190
Consumption, apparent ¹ (crude and ground)	1,780	2,660	2,930	3,430	2,600
Consumption ² (ground and crushed)	2,410	2,570	2,910	3,310	2,700
Estimated price, average value,					
dollars per ton, f.o.b. mine	80	77	86	112	115
Employment, mine and mill, number ^e	400	420	450	470	480
Net import reliance ³ as a percentage of					
apparent consumption	78	75	76	81	75

Recycling: None.

Import Sources (2009–12): China, 86%; India, 8%; Morocco, 3%; and other, 3%.

Number	Normal Trade Relations 12–31–13
2511.10.1000	Free.
2511.10.5000	\$1.25 per metric ton.
2816.40.2000	2% ad val.
2827.39.4500	4.2% ad val.
2833.27.0000	0.6% ad val.
2836.60.0000	2.3% ad val.
	2511.10.1000 2511.10.5000 2816.40.2000 2827.39.4500 2833.27.0000

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Because oil and gas drilling is the dominant use of barite in the United States, the count of operating drill rigs exploring for oil and gas is a good barometer of barite consumption or industry stockpiling. During 2013, the number of drill rigs operating in the United States was fairly constant, varying between 1,738 and 1,782. This was essentially unchanged from yearend 2012, but substantially below the peak of 2,031 reached in 2008. Estimated 2013 barite imports decreased by more than 25% compared with those of 2012, which was an indication of reduced demand and the result of possible stockpiling in 2012.

Barite mining projects, in various stages of development, were underway in Kazakhstan, Liberia, Mexico, Nigeria, Zimbabwe, and possibly in other countries. The dependency on a few major exporting countries and rising prices led to increased interest in developing new sources of barite. As a result, diversification in global barite supplies will likely increase.

Compared with those at yearend 2011, Chinese and Moroccan barite prices decreased in 2012 while Indian barite prices increased. The October published price range for Chinese unground barite, specific gravity 4.20, free on board (f.o.b.) China, was \$120 to \$140 per ton, a decrease of about \$15 per ton. The price range for Moroccan unground barite, f.o.b. Morocco, was \$105 to \$130 per ton, a decrease of \$28 per ton. The price range for Indian unground barite, f.o.b. Chennai, was \$145 to \$155 per ton, an increase of about \$8 per ton.

<u>World Mine Production and Reserves</u>: Production estimates for individual countries were made using country-specific data where available; other estimates were made based on trade data and general knowledge of end-use markets. Reserves data for India, Kazakhstan, and Turkey were revised based on Government or industry information.

	Mine production 2012 2013 ^e		Reserves ⁴
United States	666	660	15,000
China	4,200	3,800	100,000
Germany	55	55	1,000
India	1,700	1,500	34,000
Iran	330	330	NA
Kazakhstan	250	250	85,000
Mexico	140	125	7,000
Morocco	1,000	850	10,000
Pakistan	52	50	1,000
Peru	76	75	NA
Russia	63	65	12,000
Thailand	70	70	18,000
Turkey	260	260	35,000
Vietnam	85	90	NA
Other countries	<u>250</u>	300	<u>35,000</u>
World total (rounded)	9,200	8,500	350,000

<u>World Resources</u>: In the United States, identified resources of barite are estimated to be 150 million tons, and undiscovered resources include an additional 150 million tons. The world's barite resources in all categories are about 2 billion tons, but only about 740 million tons is identified resources.

<u>Substitutes</u>: In the drilling mud market, alternatives to barite include celestite, ilmenite, iron ore, and synthetic hematite that is manufactured in Germany. None of these substitutes, however, has had a major impact on the barite drilling mud industry.

^eEstimated. NA Not available.

¹Sold or used by domestic mines + imports – exports.

²Imported and domestic barite, crushed and ground, sold or used by domestic grinding establishments.

³Defined as imports – exports + adjustments for Government and industry stock changes.

⁴See Appendix C for resource/reserve definitions and information concerning data sources.